



Approval # 20000018

Environmental & Regulatory Services Division  
Bureau of Storage Tank Regulation  
201 West Washington Avenue  
P.O. Box 7837  
Madison, WI 53707-7837

## Wisconsin COMM 10 Material Approval

Equipment HORNER SIR PRO 1 V3.0

Manufacturer Horner Products, Inc.  
104 Little Killarney Beach  
Bay City, MI 48706

Expiration of Approval: December 31, 2006

---

### **SCOPE OF EVALUATION**

The Horner Statistical Inventory Reconciliation (SIR PRO 1) System, Version V3.0, manufactured by Horner Products, Inc., for leak detection of tanks and connected piping, has been evaluated for use as a method of monthly monitoring complying with **ss. COMM 10.61 (8) and 10.615 (3)** of the current edition of the Wisconsin Flammable and Combustible Liquids Code.

### **DESCRIPTION AND USE**

The Horner SIR PRO 1 system functions as a quantitative method that analyzes inventory records for evidence of leaks. Based on an analysis of inventory records and application of a threshold, the method declares a tank to be tight, a leak indicated, the results inconclusive, or the data unusable. If a leak is indicated, an estimated leak rate will be given.

The SIR system is capable of identifying and/or compensating for:

- Leak Rates (Identified and Quantified)
- Delivery Errors (Identify only)
- Unexplained Gains Or Losses (Identify only)
- Dispensing Meter Errors
- Calibration Errors
- Dipstick or Gauging Errors (Identify only)
- Conversion Chart Miscalibration
- Water Inflow Or Outflow (Identify only)
- Thermal Effects

Inventory data may be recorded manually or by use of an electronic or other tank monitor. Data that must be reported for leak detection analysis include:

- Measurement of product height and /or associated volume conversions for the days the tanks are in active operation.
- Deliveries or amount of product transferred to the tank by date and amount.
- A record of the amount of product dispensed from the tank system during each day of active use.
- Temperature of the product in the tank. (optional)

The facility may be closed for one or more consecutive days during the data collection period, but the inventory record submitted for analysis must contain data from a minimum of 23 days of active use of the facility. Properly calibrated meters are required for use of the SIR system.

The SIR system will not give conclusive results if there is an insufficient number of usable inventory records, or unacceptable daily variability of inventory records.

If a leak is indicated, the leak could be located in any portion of the tank system, including piping. Additional testing may be needed to isolate the location of the leak.

## **TESTS AND RESULTS**

The performance of the Horner SIR PRO 1 system was determined in accordance with the EPA protocol for evaluation of statistical inventory reconciliation methods, in conjunction with protocol from the National Work Group on Leak Detection Evaluations (NWGLDE) for testing manifolded tanks and determining size limitations. The SIR system was found to be capable of detecting a leak, using the manufacturer's threshold of 0.1 gallon per hour, with a probability of false alarm ( $P_{FA}$ ) of less than 0.1 percent. The probability of detection ( $P_D$ ) of a 0.20 gallon per hour leak was found to be greater than the minimum 95 percent required by regulation.

**LIMITATIONS / CONDITIONS OF APPROVAL**

<b>Leak Threshold<sup>1</sup>:</b>	Varies between 0.1 gph and 0.2 gph based on MDL.
<b>Applicability:</b>	Gasoline, diesel, kerosene.
<b>Tank Capacity:</b>	Maximum 45,000-gallons for single tanks. Maximum 45,000-gallons aggregate for manifolded systems
<b>No. of Manifolded Tanks in System:</b>	Maximum of 4
<b>Data Requirement:</b>	Minimum of 23 days of product level and flow through data

<sup>1</sup>: MDL (minimum detectable leak rate) is calculated for each unique set of data, based on a statistical analysis of the inventory records for the selected time period (MDL is a measure of how good the data set is). The threshold is an action level leak rate and is usually one-half of the MDL. If the estimated leak rate equals or exceeds the threshold established by the MDL, the system will not be declared tight, and the SIR vendor shall declare a fail.

- The Horner SIR PRO 1 system may be used as a method of monthly monitoring for tanks and connected piping complying with **ss. COMM 10.61 (8) and 10.615 (3)**.
- All procedures for data collection specified by Horner Products, Inc. shall be used.
- Horner Products, Inc. shall provide an updated list of all Wisconsin users of the SIR system to the department every six months. The list is to be sent to the address located on the cover sheet of this material approval. Copies of correspondence concerning UST system status between SIR system users and Horner Products, Inc. shall be supplied to the department by both Horner Products, Inc., and the facility operators, upon request. Continued approval shall be contingent upon department verification of operational viability of the SIR method.
- If the SIR test results indicate that a tank system is not tight, or the results are inconclusive, the suspected release investigation and confirmation procedures specified under **ss. COMM 10.63 and 10.64** shall be followed. In addition, within 48 hours, the Bureau of Storage Tank Regulation shall also receive written notification of those tank systems that are not considered tight or where the results are inconclusive. The notification may be provided by either Horner Products, Inc. directly or forwarded through the facility operator to the address on the cover sheet of this material approval.
- If a second test is required to confirm the status of a tank system, that test shall be an approved tightness test in accordance with **ss. COMM 10.635 (2)(a)**. The SIR method shall not be used to provide this second test.

This approval will be valid through December 31, 2006, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

**DISCLAIMER**

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Reviewed by: \_\_\_\_\_  
Greg Bareta  
Engineering Consultant  
Bureau of Storage Tank Regulation

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_